spread over an interval of two months have been obtained. The wave-lengths were determined with higher accuracy than in previous work with the same instruments, owing to additional precautions taken in the photography of the comparison spectra. The changes in the spectrum observed during the two months are discussed in detail.—Patrick **Browne**: Some singular cases of Volterra's equation.—E. **Barré**: The surfaces described by an indeformable helix which remains constantly an asymptotic to the surface which it describes.—Alphonse **Berget**: A total immersion areometer without capillary correction. A glass bulb is held completely under the surface of the liquid the density of which is required by means of a flat invar spring, and the rise or fall of the bulb measured by means of a cathetometer. The instrument is calibrated with solutions of known density, and will give the density with an accuracy of about one-millionth. It has been chiefly designed for determining the density of samples of sea water.—Jean **Effront**: The action of hydrogen peroxide upon lactic acid and glucose. Lactic acid is transformed quantitatively by hydrogen peroxide into acetic and carbonic acids. Glucose gives alcohol, aldehyde, formic acid, and acetic acid.—J. **Giraud**: The eruptive rocks in the south of Madagascar.—V. **Vermorel** and E. **Dantony**: Surface tension and the moistening power of insecticides and fungicides. A means of conferring moistening power on cupric or insecticide solutions.—G. **Arnaud** and E. **Foëx**: The oidium of the oak, *Microsphaera quercina*. A discussion as to the correct classification of this fungus.—P. **Gérard**: The influence of the food on the amount of sodium and potassium in a dog.—Mlle. **Robert**: The method of fixing calcium by *Aspergillus niger*. Calcium is fixed by the mycelium of the mould in the form of calcium oxalate.—M. **Neveu-Lemaire**: Congenital bronchial strongylosis in the sheep.—Mieczyslaw **Oxner**: New experiments on the nature of the memory in *Coris julis*, carried out by the method of substitution.—Georges **Negre**: Discovery of phosphate sands in the department of Yonne.—Ernest **Esclangon**: New researches on the value of the earth's acceleration in the south-west of France.

May 20.—M. Lippmann in the chair.—H. **Deslandres**: Relations between temporary stars and the sun. A simple explanation of temporary stars. The author's view of a temporary star is that it consists of a single body, already cooled with a solid crust relatively thin. A break in this crust, with the sudden eruption of incandescent gases under high pressure, is sufficient to explain most of the observed spectroscopic phenomena. A similar phenomenon, on a much smaller scale, has been previously noted by the author in the solar faculæ. The final transformation into a nebula remains unexplained.—M. **de Forcrand**: Some physical properties of cyclohexanol. A kilogram of the phenol was prepared by the catalytic method and carefully purified from traces of water, first by fractional crystallisations and afterwards by repeated treatments with anhydrous sodium sulphate. The pure substance boils at 160·9°, and melts at 22·45° C. The density and solubility in water were also determined.—A. **Perot**: The green line of the corona. The line was very large, unsymmetrical, and degraded towards the red. The mean wave-length was 5303·7 A.—MM. **Durand, Levesque,** and **Viviez**: Observation of the solar eclipse of April 17, 1912.—René **Garnier**: The limits of the substitutions of the group of a linear equation of the second order.—G. **Bouligand**: The small movements of the surface of a liquid in the field of a central attractive force as a function of the distance.—Gaston Leinekugel **Le Cocq**: A remarkable property of teledynamic cables.—Jean **Villey**: Volta's phenomenon and the theory of Nernst.—L. **Dunoyer**: An apparatus for the rapid distillation of mercury in a vacuum. The mercury is heated electrically in a barometer forming an inverted U-tube. When the level of the undistilled mercury falls to a determined point the heating resistance is automatically cut out.—G. **Sagnac**: The direct measurement of the differences of phase in an interferometer with inverse pencils. Application to the optical study of transparent silver deposits.—H. **Buisson** and Ch. **Fabry**: The temperature of sources of light. The width of the lines of the spectrum is used as a measure of the temperature of the vapour. From these considerations the temperature of the vapour in a Cooper-Hewitt lamp with a small current is about 1200° C., or even a lower value. An electric arc in a vacuum between iron electrodes gives from the width of the lines a temperature of 2400° C.—Camille **Matignon**: The preparation and heat of formation of magnesium nitride. The nitride was prepared in a pure state by the action of ammonia, purified by liquefaction, upon heated magnesium powder. The material was utilised for the determination of the heat of solution of the magnesium nitride in dilute sulphuric acid, from which the heat of formation is calculated as 119·7 calories.—Œchsner **de Coninck**: A mode of formation of acrolein. This aldehyde is formed in the dry distillation of sodium formate.—P. **Lemoult**: The question of the hexahydro-derivative of malachite green: an example of two different leuco bases giving the same colouring matter.—Marcel **Guerbet**: The condensation of the primary alcoholates of sodium with the secondary alcohols.—Ch. **Mauguin**: The internal agitation of liquid crystals.—Marcel **Baudouin**: Osteo-arthritis in the polished stone age. A study of human bones found in the Neolithic remains of Vendrest show that these present lesions characteristic of the disease now known as osteo-arthritis.—Maurice **Arthus**: Anaphylaxy and immunity. Experiments on the rabbit with snake poison show that the states of anaphylaxy and immunity can co-exist in the same animal.—Jousset **de Bellesme**: The functions of pigment. A discussion of the relations between reproductive activity and the formation of pigment.—N. A. **Barbieri**: The non-existence in the retina of the chemical principles of the optic nerve.—J. M. **Albahary**: The metabolism of oxalic acid and the oxalates in the economy.—H. **Labbé** and G. **Vitry**: The non-dialysable urinary substances eliminated during the diabetic condition.—Em. **Bourquelot** and M. **Bridel**: A synthetic action of emulsin.—Pierre **Kennel**: The adipolymphoid bodies in the Batrachians. There is a seasonal development of these bodies in frogs, passing through a minimum about April.—L. **Falcoz**: The classification of the burrowing mammals.—Paul **de Beauchamp**: The evolution of *Rhytidocystis Henneguyi*.—Pierre **Bonnet**: The Mesozoic of the gorge of the Araxe, near Djoulfa.

BOOKS RECEIVED.

Spectroscopy. By Prof. E. C. C. Baly. New edition. Pp. xiv+687. (London: Longmans and Co.) 12*s*. 6*d*.

Prodromus Floræ Britannicæ. By F. N. Williams. Part ix. Pp. 477–532. (Brentford: C. Stutter.) 2*s*. 9*d*.

Lehrbuch der Thermochemie und Thermodynamik. By Prof. O. Sackur. Pp. viii+340. (Berlin: J. Springer.) 12 marks.

The Montessori Method. Scientific Pedagogy as Applied to Child Education in "The Children's Houses," with Additions and Revisions by the

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Author. By M. Montessori. Translated by A. E. George. Pp. xlii+377. (London: W. Heinemann.) *7s. 6d.* net.

Forty-third Annual Report of the American Museum of Natural History, for the Year 1911. Pp. 173. (New York: American Museum of Natural History.)

The Evolution of Educational Theory. By Prof. J. Adams. Pp. vii+410. (London: Macmillan and Co., Ltd.) *10s.* net.

Rambles in the Pyrenees and the Adjacent Districts, Gascony, Pays de Foix, and Roussillon. By F. H. Jackson. Pp. xii+419. (London: J. Murray.) *21s.* net.

Geometry for Schools. By W. G. Borchardt and Rev. A. D. Perrott. Vols. i.–iv. Pp. xiv+325+xiv. (London: G. Bell and Sons, Ltd.) *3s. 6d.*

The Calculus for Beginners. By W. M. Baker. Pp. viii+166. (London: G. Bell and Sons, Ltd.) *3s.*

Handbuch der Anatomie des Menschen: Die Muskeln des Stammes. By Prof. P. Eisler. Pp. xii+705. (Jena: G. Fischer.) 38 marks.

Omens and Superstitions of Southern India. By E. Thurston. Pp. 320. (London: T. Fisher Unwin.) *12s. 6d.* net.

Preventable Cancer: a Statistical Research. By R. Russell. Pp. vi+168. (London: Longmans and Co.) *4s. 6d.* net.

The Young Nietzsche. By Frau Förster-Nietzsche. Translated by A. M. Ludovici. Pp. x+399. (London: W. Heinemann.) *15s.* net.

Man and the Universe. By Sir Oliver Lodge. Cheap edition. Pp. 284. (London: Methuen and Co., Ltd.) *1s.* net.

Schutzfermente des tierischen Organismus. By E. Abderhalden. Pp. xii+110. (Berlin: J. Springer.) 3.20 marks

Barker on Heating: The Theory and Practice of Heating and Ventilation. By A. H. Barker. Pp. xvi+640+lxxvi. (London: The Carton Press.) *25s.* net.

The Dictionary of Photography. By E. J. Wall. Edited by F. J. Mortimer. Ninth edition. Pp. iv+738. (London: Hazell, Watson and Viney, Ltd.) *7s. 6d.* net

Studies in Bird Migration. By W. Eagle Clarke. Two vols. Vol. i., pp. xvi+323; vol. ii., pp. vii+346. (London: Gurney and Jackson; Edinburgh: Oliver and Boyd.) *18s.* net.

The Energy System of Matter: a Deduction from Terrestrial Energy Phenomena. By J. Weir. Pp. ix+200. (London: Longmans and Co.) *6s.* net.

Fungoid Diseases of Agricultural Plants. By Dr. J. Eriksson. Translated by A. Molander. Pp. xv+208. (London: Baillière, Tindall and Cox.) *7s. 6d.* net.

DIARY OF SOCIETIES.

THURSDAY, May 30.

Royal Institution, at 3.—X-Rays and Matter: Prof. C. G. Barkla.

FRIDAY, May 31.

Royal Institution, at 9.—Icebergs and their Location in Navigation: Prof. H. T. Barnes.

Physical Society, at 5.—The Calibration of Wave-meters for Radio-telegraphy: Prof. G. W. O. Howe.—On the Use of Heaviside's Resistance Operators in Air-core Transformer Theory: Dr. W. H. Eccles.—The Movements of Semi-oily Liquids on a Water-surface: C. R. Darling.—Experiments on Surface Leakage in Alternating Electric Fields: G. L. Addenbrooke.

SATURDAY, June 1.

Royal Institution, at 3.—The Development of Meteorological Science: Willis L. Moore.

MONDAY, June 3.

Aristotelian Society, at 8.—Significance and Validity in Logic: W. E. Tanner.

Victoria Institute, at 4.30.—The Influence of Babylonian Conceptions on Jewish Thought: The Ven. Archdeacon Beresford Potter.

Society of Chemical Industry, at 8.—The Nature of the Process of Oxidation (with demonstrations): H. E. Armstrong, F.R.S., and R. T. Colgate.—Some Present Day Aspects of the Match Industry: E. G. Clayton.

Institute of Actuaries, at 5.

TUESDAY, June 4.

Royal Institution, at 3.—The Formation of the Alphabet: Prof. W. M. Flinders Petrie.

Röntgen Society, at 8.15.

Zoological Society, at 8.30.—The Preservation of the English Fauna: E. G. B. Meade-Waldo.—The North Rhodesian Giraffe: R. Lydekker.—On the Hydrocoralline Genus Errina: Prof. S. J. Hickson.—Contributions to the Anatomy and Systematic Arrangement of the Cestoidea. VI. On an Asexual Tapeworm from the Rodent *Fiber zibethicus*, showing a New Form of Asexual Propagation, and on the supposed Sexual Form: Dr. F. E. Beddard.—Polychæta from the Pacific Coast of North America. Part I. Serpulidæ, with a Revised Table of Classification of the Genus Spirorbis: Helen L. M. Pixell.—On some New Fossil Reptiles from the Permian and Triassic Beds of South Africa: Dr. R. Broom.

WEDNESDAY, June 5.

Society of Public Analysts, at 8.—The Composition of Milk: H. D. Richmond.—On the Application of Adsorption to the Detection and Separation of certain Dyes: A. C. Chapman and A. Siebold.—The Estimation of Dirt in Milk: W. F. Lowe.—A New Method for the Detection and Estimation of Small Quantities of Nitrous Acid: E. H. Miller.—A Further Note on the Use of Methylene Blue as an Indicator in Iodimetric Titrations: F. S. Sinnatt.—The Estimation of Nitric and Nitrous Acids in Acetic Acid Solution. The Stability of Nitric Acid in Acetic Acid Solution: Dr. K. J. P. Orton.

Geological Society, at 8.—The Further Evidence of Borings as to the Range of the South-Eastern Coalfield and of the Palæozoic Floor, and as to the Thickness of the Overlying Strata: Prof. W. Boyd Dawkins.—Shelly Clay dredged from the Dogger Bank: J. W. Stather.

Entomological Society, at 8.—Studies in the Blattidæ, XII.: R. Shelford.—*Lycaena* (Agriades) *alexius*, Frr., a "Good" Species: Dr. T. A. Chapman.

THURSDAY, June 6.

Royal Society, at 4.30.—Croonian Lecture: The Process of Excitation in Nerve and Muscle: Keith Lucas.

Institution of Mining Engineers, at 11 a.m.—Address by President: W. E. Garforth.—Why Leave Shaft-pillars? W. H. and B. H. Pickering.—Safety-devices in Connection with Electrical Machinery and Appliances for Coal-mines: D. Bowen and W. E. French.—A Rope-driven Coal-cutter: W. L. Spence.

Royal Institution, at 3.—On X-Rays and Matter: Prof. C. G. Barkla.

FRIDAY, June 7.

Royal Institution, at 9.—Lord Lister: Sir William Macewen.

SATURDAY, June 8.

Royal Institution, at 3.—The Weather and the Utilities of Forecasts: Willis L. Moore.

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